APPENDIX A. TIQM® PLANNING

The HUD TIQM® method defines four major processes. However, information quality assessment or certification projects most frequently will consist of one TIQM® process, whereas improvement and correction projects will be more typically a combination of these two processes. In some cases, projects may add steps or tasks within processes to meet the particular needs of the Program Area.

The decision as to which processes will be conducted and the specific tasks to be performed in each step must be documented in a project plan. Although the entire project should be included in the plan, it will necessarily be updated at key points throughout the project and the level of detail of the planning will vary at different stages.

Samples of work breakdown structures are provided as a starting place in the subsequent sections of this appendix, to be tailored as needed for specific projects. The TIQM® tasks may be iterative based upon the requirements of the individual Program Areas and the state of the information quality. These samples were developed to help identify the high level tasks required to plan and execute a TIQM® project. Additional tasks will be needed, such as training in the method at the beginning of the project, details of the assessment and correction processes depending upon the specific data elements and systems in the scope, and details of the improvements process once specific improvements are identified.

A.1 OUTLINE FOR TIQM®

A project plan typically includes the components listed below. The TIQM® Project Plan for an Improvement or a Correction project is a required document. However, only the project Schedule is a required deliverable.[23]

- Executive Summary: Describes the purpose, scope of activities, and intended audience of the plan.
- Project Objectives: Describes the business goals and priorities for management of the project.
- Project Assumptions, Constraints, and Risks: States the assumptions upon which the project is based, including the external events the project is dependent upon, and the constraints under which the project is to be conducted. Identifies and assesses the risk factors associated with the project and proposes mitigation of the risks.
- Work Breakdown Structure: Identifies high-level tasks required for planning and executing the project.
- Project Responsibilities: Identifies each major project function and activity and names the responsible individuals.
- Task Descriptions: Describes each function, activity, or task and states both internal and external dependencies.
- Project Deliverables: Lists all items to be delivered plus delivery dates.
- Resource Requirements and Plan: Specifies the number and types of personnel required to conduct the project. Includes required skill levels, start times, and plans for training personnel in the TIQM® method. Includes requirements for computer resources, support software, computer and network hardware, office facilities, and maintenance requirements.
- Schedule: Provides the schedule for the various project functions, activities, and tasks including dependencies and milestone dates. A Gantt chart noting major deliverables and milestones is very useful to depict a summary view of the entire project schedule.

A.2 SAMPLE TIQM® ASSESSMENT WORK BREAKDOWN STRUCTURE

1.0 Plan TIQM® Assessment Project

2.0 Select Data Element Candidates

- 2.1 Determine Scope Based on Business Needs
- 2.2 Identify Information Group to be Assessed
- 2.3 Identify Information Value and Cost Chain
- 2.4 Identify Information Stakeholders
- 2.5 Identify Information Quality Objectives and Measures
- 2.6 Determine Files and Processes to Assess
- 2.7 Prioritize Data Elements Supporting Business Need

3.0 Assess Data Definition and Information Architecture Quality

- 3.1 Identify Data Definition Quality Measures
- 3.2 Assess Data Definition Technical Quality
- 3.3 Assess Information Architecture and Database Design Quality
- 3.4 Assess Customer Satisfaction with Data Definition and Information Architecture
- 3.5 Develop or Improve Data Definitions
- 3.6 Improve Data Development Process

4.0 Analyze Desired Quality Standards for Prioritized Data Elements

- 4.1 Define Information Value and Cost Chain for Data Element(s)
- 4.2 Identify Accuracy Verification Sources
- 4.3 Determine Applicable Data Correction Criteria for each Data Element
- 4.4 Determine Quality Standards (compliance levels)
- 4.5 Determine Presentation Quality Measures
- 4.6 Establish Statistical Controls

5.0 Assess Current Level of Information Quality

- 5.1 Extract Random Sample of Data
- 5.2 Measure Information Quality

6.0 Measure Non-Quality Information Costs

- 6.1 Identify Business Performance Measures
- 6.2 Calculate Information Costs
- 6.3 Calculate Non-Quality Information Costs
- 6.4 Measure Lost Opportunity Costs and Information Value

7.0 Interpret and Report Information Quality

A.3 SAMPLE TIQM® IMPROVEMENT WORK BREAKDOWN STRUCTURE

1.0 Plan TIQM® Improvement Project

2.0 Implement Information Quality Improvement

- 2.1 Prepare for Information Quality Improvement
  - *2.1.1 Select Process for Information Quality Improvement*
  - *2.1.2 Develop Information Quality Awareness Plan*
  - *2.1.3 Identify PAQIT Members*
  - *2.1.4 Assess Skills Levels of Team Members*
  - *2.1.5 Conduct Information Quality Improvement Training as Needed*
- 2.2 Plan for Information Quality Process Improvement
  - *2.2.1 Determine Information Stewardship Roles Across the Value and Cost Chain*
  - *2.2.2 Conduct Root Cause Analysis*
  - *2.2.3 Define Process Improvement(s)*
  - *2.2.4 Develop Information Quality Improvement Measures*
  - *2.2.5 Determine Improvement Strategy, Plan, Milestones, And Schedule*
- 2.3 Do Implement Information Quality Improvement
  - *2.3.1 Document Improved Procedures and Training*
  - *2.3.2 Document Improvement Changes for Software, Data Models and Databases*
  - *2.3.3 Develop Procedural Modifications and Train Knowledge Workers*

2.3.4 Develop Application Software Edits
2.3.5 Identify a Controlled Area for Deployment
2.3.6 Implement in a Controlled Environment
2.4 Check Impact of Information Quality Improvement
2.4.1 Measure and Quantify Performance Benefits
2.4.2 Quantify Economic Gains
2.4.3 Record Lessons Learned
2.5 Act to Standardize Information Quality Improvement
2.5.1 Implement Necessary Quality Controls
2.5.2 Deploy Improvements
2.5.3 Record Lessons Learned and Best Practices
2.5.4 Record Costs Savings, Opportunities Realized
2.5.5 Record Process Improvement History

A.4 SAMPLE TIQM® CORRECTION WORK BREAKDOWN STRUCTURE

1.0 Plan TIQM® Correction Project

2.0 Conduct Correction

2.1 Plan Data Correction
2.1.1 Refine Correction Approach, Plan and Schedule
2.1.2 Identify and Prioritize Data to Be Corrected
2.1.3 Determine Appropriate Data Correction Techniques and Methods
2.1.4 Determine Automated Tool Support Requirement
2.1.5 Procure and Install Automated Tools as Required
2.2 Extract and Analyze Source Data
2.2.1 Identify Sampling Technique and Extract Sample
2.2.2 Analyze Data
2.2.3 Document and Confirm Findings
2.3 Execute Manual and Automated Data Correction
2.3.1 Develop and Test Automated Data Correction Techniques
2.3.2 Develop and Test Manual Data Correction Procedures
2.3.3 Execute Data Correction
2.3.4 Summarize Data Correction Activities
2.3.5 Calculate Derived and Summary Data
2.3.6 Verify Corrections Properly Applied (Procedure)
2.3.7 Summarize Data Correction Activities
2.4 Determine Adequacy of Correction
2.4.1 Assess Correction Techniques and Re-Usability
2.4.2 Identify the Data Elements/Groups Corrected (Content)
2.4.3 Re-Assess Data Element Quality
2.4.4 Assess Plan, Schedule, and Resource Roles
2.4.5 Assess Cost Effectiveness
2.4.6 Review and, as Necessary, Redefine Quality Criteria Specifications
2.4.7 Identify Best Correction Practices
2.4.8 Recommend Improvements to Correction Tasks

A.5 SAMPLE TIQM® CERTIFICATION WORK BREAKDOWN STRUCTURE

1.0 Plan TIQM® Project

1.1 Identify Information Quality Improvement for Certification
1.2 Revise Terms and Conditions for Certification
1.3 Develop Certification Plan

2.0 Certify Approach

2.1 Select Information Group Candidates
2.1.1 Validate Information Value and Cost Chain
2.1.2 Identify Information Stakeholders
2.1.3 Identify Information Quality Objectives and Measures

2.1.4 Determine Files and Processes to Certify
2.1.5 Prioritize Data Elements Supporting Business Needs
2.2 Validate Data Definition and Information Architecture Quality
2.2.1 Validate Data Definition Quality Measures
2.2.2 Assess Data Definition Technical Quality
2.2.3 Assess Information Architecture & Database Design Quality
2.2.4 Assess Customer Satisfaction with Data Definition and Information Architecture
2.2.5 Prioritize Data Elements Supporting Business Need
2.3 Measure Non-Quality Information Costs
2.3.1 Identify Business Performance Measures
2.3.2 Calculate Information Costs
2.3.3 Calculate Non-Quality Information Costs
2.3.4 Measure Lost Opportunity Costs and Information Value

3.0 Certify Information Quality Process Improvements

3.1 Define Information Quality Improvement Process Certification Technique
3.2 Identify Stakeholders (Interviewees)
3.3 Develop Information Quality Improvement Process Certification Criteria
3.4 Conduct and Manage Information Quality Improvement process Certification
3.5 Interpret and Report Information Quality Improvement Findings

4.0 Certify Data Corrections

4.1 Identify Data Element Definitions
4.2 Define Data Certification Technique
4.3 Define Data Certification Technique
4.4 Define Sample Size and Resources
4.5 Develop Data Certification Criteria
4.6 Conduct and Manage Data Certification
4.7 Interpret and Report Findings